AUDIT SAMPLING – SA 530

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NEED FOR SAMPLING

1. Audit of 100% population is impractical from time and cost angle. The Auditors also give only the reasonable assurance – and not a guarantee - that the Financial Statements are free from material misstatements.
2. The objective of sampling is to provide reasonable basis for the auditor to draw the conclusion about the population from which sample is selected.
3. It is an application of Audit procedure to less than 100% of items within the population where all sampling units have the chance of selection.
4. Sample size will depend upon the purpose of audit procedure and characteristics of the population from which the sample is drawn. The sample size shall be sufficient to reduce the sampling risk.

NEED FOR SAMPLING

5. Total reliance on sampling can lead to two types of erroneous conclusions –
   - In case of test of control, the sample examination may suggest that the controls are more effective than they actually are or less effective than they actually are.
   - In case of test of details, material misstatement does not exist when in fact it exists, or it exists when in fact it does not.
6. The sample can be selected by random selection or systematic selection or haphazard selection. The technique of stratification or value-weighted selection (selection of large value items) can be used.

NEED FOR SAMPLING

7. The use of stratification is necessary to divide the data in sub populations based on characteristics or monetary value.
8. When any deviation or misstatement is found in the sample, the auditor shall obtain high degree of certainty that such deviation or misstatement is not representative of population, and it is within the tolerable range.
9. Sampling technique is prone to risk. Lower the risk the Auditor is willing to accept, greater will be the sample size.
10. It is necessary to perform the Audit procedures on the selected sample. When the conclusion cannot be drawn from sample Audit, it is necessary either to enlarge the sample or to perform alternative Audit procedures.

NEED FOR SAMPLING

11. It is necessary to analyse the deviations from the expected results in the sample and then project the likely misstatements in test of controls and test of details. The deviation found in the sample should be within the tolerable range.
12. Sampling is synonymous to checking of the pulse by Medical Doctor.
13. The most important point to remember is that – there should be no bias in selection of sample. (like opinion poll analysis)
14. Some statistical techniques like “calculation of mean, standard deviation” can also be used to vet the authenticity of population itself. Statistical standards show that about 68% of items in a “normal” population will be one standard deviation from the mean and over 95% of the same population will be two standard deviations (+/-).

CONCEPT OF BENFORD ANALYSIS

- The Benford analysis is used for selecting the sample from the larger population for the purpose of Audit.
- It is based on the statistical analysis made by Dr. Frank Benford – a physicist in General Electric Company in 1938.
- This analysis has given the standard score or Z score of probability of each digit appearing in various places in each number.
- The data for the audit - e.g. purchase register or sales register – is analyzed to find out the occurrence of each digit in different places. It is expressed in percent terms.
- This percentage is compared with the Z score given by Benford to find out the variance & draw conclusions.

STEPS FOR ANALYSIS

- Export the data to Excel. Use stratification to exclude small amounts.
- Use “MID” function for the first 4 numeric of all figures and place the resultant figure in next 4 columns.

  For e.g. – for 1st numeric - =mid(cell reference, 1, 1)

  – for 2nd numeric - =mid(cell reference, 2, 1)

  – for 3rd numeric - =mid(cell reference, 3, 1)

- Copy above function on the entire data.
- Type figure 0 to 9 vertically below sample data with 4 additional columns.
- Use “COUNTIF” function to count number of occurrences of each digit in the given sample in all 4 columns. For e.g. - = countif(range, criteria) – Criteria is digit 1 to 9.

STEPS FOR ANALYSIS

- Take total of all counts and compare the same with the total count of data to confirm all digits are counted.
- Take percentage of occurrence of each digit to the total of the count.
- Compare the occurrence of percentage of each digit with the standard set by Benford to find the deviation. Relative deviation with the Benford figures is necessary rather than absolute deviation.
- Draw conclusions. If the deviation is substantial, check the vouchers beginning with that digit to establish authenticity.

CONCLUSIONS

1. After doing Benford Analysis and finding the digit-wise deviation for first 4 digits, it is important to interpret these deviations and draw conclusions therefrom.
2. If the deviation is a minus figure, the possibility of any fraud is minimal.
3. However, it is important to remember that all minus deviations will be compensated by plus deviations. Then it becomes necessary to concentrate on plus deviations.
4. Generally speaking, the relative deviation – whether plus or minus within the range of 0% - 5% is acceptable since no data can perfectly match the standard.

CONCLUSIONS

5. The plus deviation in the first digit for the digits 5 – 9 is more important because the fraudster will benefit more by altering the higher value of first digit i.e. 5 to 9. For example, the digit 5 can easily be altered to digit 6, the digit 7 can easily be altered to 8, the digit 1 can easily be altered to digit 9.
6. In case of plus relative deviation of more than 2%, following steps need to be taken -
   - Draw the sample of all the figures beginning with that digit.
   - Arrange all the figures from highest to lowest.
   - Search the duplicate figures, especially the identical supplier with the identical bill.
   - Verify all the purchase bills for this digit, especially the bills with higher amounts.

CONCLUSIONS

7. The possibility of fraud is highest in the first and second digit itself. However, for large sums like millions or crores, even third & fourth digit also are important. E.g. The zero in 3rd or 4th digit can be easily altered to nine & the fraudster will benefit hugely from such alteration.
8. The deviation could be innocent also, especially when the entity purchases fixed quantity of the item at fixed rates, at periodical intervals from the same supplier. However, such instances also can smell fraud because there is a possibility of recording the original bill and the duplicate bill.
9. In case of very large data – say more than 10,000 purchase vouchers, analysis of entire data at one go could be wrong since the deviations will be evened out in large data. In such case, take either quarterly or six-monthly data at one time for analysis. (salt in water)

CONCLUSIONS

10. In short, deny nothing but doubt everything.
11. While doing the vouching of all the vouchers pertaining to a particular digit, one has to see following points –
    - Overwriting of first or second digit (or third & fourth – if required).
    - Amount in figures & words. It is difficult to overwrite the figure in words.
    - Identical bill numbers.
    - Appearance of the bill to find out whether the bill is morphed.
    - Bills with caption “Duplicate”.
    - Possibility of circumventing the internal control over authority level. (ready mix concrete trucks)

CONCLUSIONS

12. All other internal control procedures like authorisation, level of authorisation, confirmation from stores and purchase department etc. are equally important.

13. Benford Analysis is basically done to avoid mindless vouching of great volume and zero-in on the fraud possibilities only.

14. If Benford Analysis is augmented with random sampling, the results could be even better. The volume of random samples will depend on the overall volume of the data. For large data, the random sampling could be 5% to 10% - depending upon sampling risk. For random selection use the formula from excel –

    =RANDBETWEEN (1,total number of selected data) or

    use the website "**stattrek.com/statistics/random-number-generator.aspx**"

BENFORD STANDARD SCORE

TABLE 3 - BENFORD STANDARD %				
Digit	First	Second	Third	Fourth
0	0.00%	11.97%	10.18%	10.02%
1	30.10%	11.39%	10.14%	10.01%
2	17.61%	10.88%	10.10%	10.01%
3	12.49%	10.43%	10.06%	10.01%
4	9.69%	10.03%	10.02%	10.00%
5	7.92%	9.67%	9.98%	10.00%
6	6.70%	9.34%	9.94%	9.99%
7	5.80%	9.04%	9.90%	9.99%
8	5.12%	8.76%	9.86%	9.99%
9	4.58%	8.50%	9.83%	9.98%

DOCUMENTATION

1. It is very necessary to document the sampling exercise to prove that -
   - ❖ The sampling methods used were chosen with due thought after considering various factors like data volume, type of organization, types of transactions, the risk analysis and materiality threshold.
   - ❖ The size of sample selected - which will entirely depend on all above factors & most importantly – on the Auditor’s experience & judgement.
2. Results of the sampling technics used – i.e. the method, size & details of sample for each type of transaction, account balance & disclosures.

DOCUMENTATION

3. Results found out from the sample-based audit –
   - ❖ Whether there is likelihood of material misstatement
   - ❖ The effectiveness of internal controls
   - ❖ Whether use of other alternative audit procedures is required & which of such procedures were adopted to justify the audit conclusions drawn.

THANK YOU